

# Chemical Control

Chemical control of OPM refers to spraying affected trees with an approved insecticide. Two insecticides are approved for control of OPM larvae or caterpillars; the bacterial biopesticide *Bacillus thuringiensis var kurstaki* (Btk) and the broad spectrum synthetic pyrethroid deltamethrin. It is recommended that trees within 50-100 metres of an infested tree are also sprayed as they are likely to be infested as well.

## Bacillus thuringiensis var kurstaki (Btk)

Btk is the most targeted pesticide with the lowest non-target impacts, largely limited to Lepidoptera. Btk is most effective against young caterpillars (L1-L3 growth stage). Spraying with Btk must be carried out in April-May and a second follow up spray is required 7-10 days after the first.

PROS	CONS
Naturally occurring	Less effective on older instars
Long track record of efficacy in treating OPM	Recommended that there are two applications
Non-persistent	Can be easily washed away by rain.
Safe for use near water	Less effective in larger trees due to poor penetration into the canopy from ground-based spraying operations
Specific to caterpillars	



Picture: Henry Kuppen

## Deltamethrin

Deltamethrin is a broad spectrum insecticide that kills a wide variety of invertebrates not just lepidoptera. It may be more appropriate for more mature caterpillars which have become tolerant to Btk. It must be sprayed with good coverage whilst caterpillars are outside the nest. Deltamethrin is highly toxic to bees and aquatic life and care must be taken when using this produce near flowering plants, rivers, streams or other water bodies. It is also acutely toxic to mammals, including humans.

PROS	CONS
Rapid effect	Acutely toxic to mammals, including humans
Single application needed	Toxic to fish and other aquatic organisms
Longer window for effective use	Considered to be dangerous to the environment
Targeting and timing is not required to be so precise	Moderately persistent in soil (conflicting reports of persistence)
	Broad-spectrum pesticide with inevitable impacts on wide variety of non-target organisms
	Less effective in larger trees due to poor penetration into the canopy from ground-based spraying operations

### Things to Consider

- There will be special restrictions if the trees are in a specially protected site (e.g SSSI, NNR). Contact [Natural England](http://www.naturalengland.org.uk) for expert advice.
- Biodiversity may be adversely affected by some insecticides. Consider if rare non-target lepidoptera are at risk using the [Biodiversity Risk Map](#).
- Applying insecticides to tall trees is difficult. You may need to use motorised sprayers, tractor mounted equipment or hydraulic platforms. This work should only be carried out by properly qualified and trained operators.
- Dying and dead caterpillars can fall out of recently sprayed trees. When treating later stage caterpillars (L4-L6) it is recommended that access to the area around treated trees is restricted for a while after spraying.
- Spraying should be repeated in the following year.

### Timings

Spraying with Btk should be carried out early in the season between April-May as the insecticide is most effective against younger, early-stage caterpillars. Spraying with deltamethrin should be carried out between April-July.

### Contacts (+ indicative costs?)

Details of business able to carry out the work can be obtained from:

- the Arboricultural Association ([www.trees.org.uk](http://www.trees.org.uk));
- your local borough or district council's tree officer;
- the British Pest Control Association ([www.bpca.org.uk](http://www.bpca.org.uk)); or
- the Forestry Commission on [opm@forestrycommission.gov.uk](mailto:opm@forestrycommission.gov.uk) or 0300 067 4442.

It is recommended recommend you get at least three quotes for costs of nest removal

### Case Study